

WHAT IS CLAIMED IS:

1. A method for redistributing a plurality of parts, comprising:  
defining a plurality of locations;  
establishing an actual inventory of a plurality of parts among the locations;  
5 establishing a desired allocation of the parts among the locations;  
determining a demand for the parts at each location using the actual inventory  
and the desired allocation;  
determining a plurality of paths, a path being operable to transfer an excess  
part from one location to another location;  
10 generating a transfer function describing a cost of transferring the excess part  
along the paths; and  
optimizing the transfer function to achieve the desired allocation of the excess  
parts at a minimum cost.
- 15 2. The method of Claim 1, wherein:  
the transfer function describes the cost associated with transferring a part  
along a plurality of alternative paths.  
optimizing the transfer function comprises minimizing the transfer function.
- 20 3. The method of Claim 1, wherein determining the paths comprises  
sending a notification if there is no path between one location and any of the other  
locations.
- 25 4. The method of Claim 1, wherein establishing the desired allocation  
comprises calculating an optimized allocation of the excess parts among the locations.
5. The method of Claim 1, further comprising adding a dummy location  
with an associated demand and an infinite transfer cost.
- 30 6. The method of Claim 1, further comprising satisfying a constraint  
requiring that the parts transferred to a location and the parts transferred from the  
location satisfy the demand for the parts at the location.

7. A computer-implemented system for redistributing a part, comprising a server associated with one or more software components collectively operable to:

define a plurality of locations;

establish an actual inventory of a plurality of parts among the locations;

5 establish a desired distribution of the parts among the locations;

determine a demand for the parts at each location using the actual inventory and the desired distribution;

determine a plurality of paths, a path being operable to transfer a part from one location to another location;

10 generate a transfer function describing a cost of transferring a plurality of excess parts along the paths; and

optimize the transfer function to achieve the desired distribution of the parts at minimum cost.

15 8. The system of Claim 7, wherein:

the transfer function describes the cost being associated with transferring a part along a plurality of alternative paths; and

the one or more software components are further operable to optimize the transfer function by minimizing the transfer function.

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9. The system of Claim 7, wherein the one or more software components are further operable to determine the paths by sending a notification if there is no path between one location and another location.

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10. The system of Claim 7, wherein the one or more software components are further operable to establish the desired distribution by calculating an optimized distribution of the excess parts among the locations.

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11. The system of Claim 7, wherein the one or more software components are further operable to add a dummy location with an associated demand and an infinite transfer cost.

12. The system of Claim 7, wherein the one or more software components are further operable to satisfy a constraint requiring that the parts transferred to a location and the parts transferred from the location satisfy the demand for the parts at the location.

13. Logic embodied in a computer-readable medium and when executed by a computer operable to:

define a plurality of locations;

establish an actual inventory of a plurality of parts among the locations;

5 establish a desired allocation of the parts among the locations;

determine a demand for the parts at each location using the actual inventory and the desired allocation;

determine a plurality of paths, a path being operable to transfer a part from one location to another location;

10 generate a transfer function describing transferring a plurality of excess parts along the paths; and

optimize the transfer function to achieve the desired allocation of the excess parts at a minimum cost.

15 14. The logic of Claim 13, wherein:

the transfer function describes a cost associated with transferring the excess parts along a plurality of alternative paths; and

the logic further operable to optimize the transfer function by minimizing the transfer function.

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15. The logic of Claim 13, wherein the logic is further operable to determine the paths by sending a notification if there is no path between one location and another location.

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16. The logic of Claim 13, wherein the logic is further operable to establish the desired distribution by calculating an optimized allocation of the excess parts among the locations.

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17. The logic of Claim 13, wherein the logic is further operable to add a dummy location with an associated demand and an infinite transfer cost.

18. The logic of Claim 13, wherein the logic is further operable to satisfy a constraint requiring that the parts transferred to a location and the parts transferred from the location satisfy the demand for the parts at the location.

19. A system for redistributing a part, comprising:

means for defining a plurality of locations;

means for establishing an actual inventory of a plurality of parts among the locations;

5 means for establishing a desired allocation of the parts among the locations;

means for determining a demand for the parts at each location using the actual inventory and the desired allocation;

means for determining a plurality of paths, a path being operable to transfer a part from one location to another location;

10 means for generating a transfer function describing a cost of transferring a plurality of excess parts along the paths; and

means for optimizing the transfer function to achieve the desired allocation of the excess parts at a minimum cost.

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20. A method for redistributing a part, comprising:  
defining a plurality of locations;  
establishing an actual inventory of a plurality of parts among the locations;  
establishing an optimized allocation of the parts among the locations;  
5 determining a demand for a part at each location using the actual inventory  
and the optimized allocation;  
determining a plurality of paths, a path being operable to transfer a part from  
one location to another location;  
generating a transfer function cost being associated with transferring a part  
10 along a plurality of alternative paths;  
satisfying a constraint requiring that the parts transferred to a location and the  
parts transferred from the location satisfy the demand for the parts at the location; and  
minimizing the transfer function to achieve the desired allocation of a plurality  
of excess parts at a minimum cost.